**Instructional Design Project:**

**Rocks and Minerals on a Wiki**

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**Final Project**

**240:240:01**

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**Dr. Elaine Huei-Lien ChenAnalysis Phase**

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Joni Walvatne

240:240 Instructional Development

Rocks and Minerals

**A.1.a.**

Problem to be resolved:

A fourth grade teacher wants to put her unit on rocks and minerals online. As a teacher who doesn’t use online resources she is interested in acquiring various online resources that would benefit her students and help with motivation. She wants to be able to develop her instructional goals, apply them to her students, and meet the diverse needs of her learners by integrating some technology into the unit along with the hands on activities she has already developed.

Needs Description (desired-actual = need):

***Desired:*** The teacher will be shown by the instructional designer various online resources and choose the ones she feels will be the most motivating and appropriate for her fourth grade classroom. She will communicate how she would like the unit placed on the wiki. The goal is to have 50%-100% of the unit placed onto a wiki in which not only the teacher can access, but also the students. Students will be able to see the instructional goals and therefore understand the purpose of the unit, which will in turn encourage motivation.

***Actual:*** The teacher and instructional designer met to consult on the unit and wiki. The teacher relayed her thoughts and opinions on her specific unit and classroom needs to the designer. These needs range from using identification skills and strategies to motivational techniques. The designer has agreed to research various online resources for rocks and minerals and provide ideas for incorporating technology into the unit. It was decided that a wiki would be an appropriate and easily accessible place for both teacher and students to acquire resources and view unit goals.

***Need:*** The teacher and instructional designer will meet on a weekly basis during the creation of the unit wiki to discuss specific needs. These needs may range from online resources to acquiring strategies to be placed on the wiki to meet the diverse needs of her students. The teacher will also decide which documents to link and incorporate onto the wiki. She will also approve how many pages will be on the wiki and what they will be dedicated to. As the instructional designer, I want the teacher to make this wiki completely hers even though I’m developing it and putting it together. She will be able to personalize it to fit her grade level and needs. Students will be able to use the wiki and its resources to learn about rocks and minerals.

**A.1.b.**

Terminal Objectives:

The teacher will introduce the rocks and minerals online unit to fourth grade students. They will be able to use and develop skills as they collect, organize, analyze, and display data throughout the unit. They will be able to choose resources and use various technologies located on the wiki during their learning processes. The teacher will act as the facilitator and guide students through the task of learning about rocks and minerals.

***Instructional Goal #1:***

A class of fourth grade students will be able to use online and other available resources throughout the unit to 100% correctly identify minerals by using seven of the most common properties of mineral identification.

* Objective 1.1: Students will be able to identify and classify minerals according to their color, streak, luster, density, hardness, cleavage, and fracture.
* Objective 1.2: Students will identify and use the reliable online resources and other resources suggested on the wiki to properly classify and make their mineral identifications.
* Objective 1.3: Students will design a classification chart based on the seven properties of mineral identification, to record data.
* Objective 1.4: Students will have a chance to closely examine minerals in a mineral kit by using a magnifying glass and add their findings to their mineral classification charts.
* Objective 1.5: Students will share the results of their mineral classifications and determine correctness with members of their rocks and minerals group.

***Instructional Goal #2:***

A class of fourth grade students will be able to use online and other available resources throughout the unit to correctly identify rocks by using 3 of the most common properties of rock identification.

* Objective 2.1: Students will be able to identify and classify rocks as igneous, sedimentary, and metamorphic.
* Objective 2.2: Students will identify and use reliable online resources and other resources suggested on the wiki to properly classify and make their rock identifications.
* Objective 2.3: Students will design a classification chart based on the 3 properties of identifying rocks, to record data.
* Objective 2.4: Students will have an opportunity to investigate rocks from a rock kit by using a magnifying glass and add their findings to their rock classification charts.
* Objective 2.5: Students will share the results of their rock classifications and determine correctness with members of their rocks and minerals group.

***Instructional Goal #3:***

A class of fourth grade students will be able to use online and other available resources throughout the unit to investigate the rock cycle.

* Objective 3.1: Students will identify and use reliable online resources and other resources suggested on the wiki to compare and contrast the 3 types of weathering.
* Objective 3.2: Students will use a comparison/contrast chart to determine the similarities and differences between chemical, physical, and biological weathering.
* Objective 3.3: Students will use their comparison/contrasts charts to relate the processes involved in the rock cycle to changes that occur in rocks.
* Objective 3.4: Students will share the similarities and differences between the 3 types of weathering to determine correctness with their rocks and minerals groups.

**A.1.c.**

Overall Project Goal:

All fourth grade students will classify rocks and minerals by their properties, the three components of weathering, and discover the changes involved in the earth’s rock cycle by using reliable online resources and other available resources on the class wiki throughout the unit.

**A.2.a 0bjectives and Learning Domains**

|  |  |  |
| --- | --- | --- |
| **Domain Letter** | **Goal** | **Learning Domain** |
| A & B | Identify minerals by using seven of the most common properties of mineral identification. | A. Verbal information - stating facts, providing specific information (e.g., naming objects). |
| A & B | Identify rocks by using 3 of the most common properties of rock identification. | B. Intellectual skills- making discriminations, learning concepts, using rules, and solving problems. |
| B | Use online and other available resources throughout the unit to investigate the rock cycle. | C. Psychomotor skills - physical activity, which usually includes mental activity as well. |
|  |  | D. Attitudes - making particular choices or behaving in a manner that implies an underlying belief or preference. |

A.2.b Goal Analysis Material Joni Walvatne

All fourth grade students will classify rocks and minerals by their properties, the three components of weathering, and discover the changes involved in the earth’s rock cycle by using reliable online resources and other available resources on the class wiki throughout the unit.

Closely examine minerals in a mineral kit by using a magnifying glass and add their findings to their mineral classification charts.

1.4

Identify and use reliable online resources and other resources suggested on the wiki to compare and contrast the 3 types of weathering.

3.1

Identify and classify rocks as igneous, sedimentary, and metamorphic.

2.1

Identify and use the reliable online resources and other resources suggested on the wiki to properly classify and make their mineral identifications.

1.2

Identify and classify minerals according to their color, streak, luster, density, hardness, cleavage, and fracture.

1.1

Design a classification chart based on the seven properties of mineral identification, to record data.

1.3

Share the results of mineral classifications and determine correctness with group members.

1.5

Determine similarities and differences between chemical, physical, and biological weathering.

3.2

Share the similarities and differences between the 3 types of weathering to determine correctness with their groups.

3.4

Relate the processes involved in the rock cycle to changes that occur in rocks.

3.3

Design a classification chart based on the 3 properties of identifying rocks, to record data.

2.3

Investigate rocks from a rock kit by using a magnifying glass and add their findings to their classification charts.

2.4

Share the results of their rock classifications and determine correctness with members of their groups.

2.5

Identify and use reliable online resources as well as others to classify and make rock identifications.

2.2

Use online and other available resources throughout the unit to investigate the rock cycle.

3

Identify rocks by using 3 of the most common properties of rock identification.

2

Identify minerals by using seven of the most common properties of mineral identification.

1

A.3.a. and A.3.b. Hierarchical Analysis and Entry Skills

Identify minerals by using seven of the most common properties of mineral identification.

1

All fourth grade students will classify rocks and minerals by their properties, the three components of weathering, and discover the changes involved in the earth’s rock cycle by using reliable online resources and other available resources on the class wiki throughout the unit.

Use online and other available resources throughout the unit to investigate the rock cycle.

3

Use online and other available resources throughout the unit to correctly identify rocks by using 3 of the most common properties of rock identification.

2

Closely examine minerals in a mineral kit by using a magnifying glass and add their findings to their mineral classification charts.

1.4

Share the results of mineral classifications and determine correctness with group members.

1.5

Identify minerals according to fracture.

1.1.7

Identify minerals according to cleavage.

1.1.6

Identify minerals according to hardness.

1.1.5

Identify minerals according to density.

1.1.4

Identify minerals according to luster.

1.1.3

Identify minerals according to streak.

1.1.2

Identify minerals according to color.

1.1.1

Design a classification chart based on the seven properties of mineral identification, to record data.

1.3

Identify and use the reliable online resources and other resources suggested on the wiki to properly classify and make their mineral identifications.

1.2

Identify and classify minerals according to their color, streak, luster, density, hardness, cleavage, and fracture.

1.1

------------------------------------------------------------------------------------------------------------

Knows how to take notes

A4

Knows how to use a magnifying glass.

A1

Knows how to access the Internet.

A2

Knows how to type a web address into the web browser.

A3

1

A Identify minerals by using seven of the most common properties of mineral identification.

1

Share the results of mineral classifications and determine correctness with group members.

1.5

Closely examine minerals in a mineral kit by using a magnifying glass and add their findings to their mineral classification charts.

1.4

Design a classification chart based on the seven properties of mineral identification, to record data.

1.3

Identify and use the reliable online resources and other resources suggested on the wiki to properly classify and make their mineral identifications.

1.2

Identify and classify minerals according to their color, streak, luster, density, hardness, cleavage, and fracture.

1.1

Use the variety websites listed on the wiki to identify and classify minerals.

1.2.1

Use rock kit to classify and make mineral identifications

1.2.2

-------------------------------------------------------------------------------------------------

Knows how to appropriately handle rocks for investigating.

B2

Knows how to read through a webpage for important information.

A2

Knows how to use magnifying glass.

B1

Knows how to access the wiki site.

A1

Identify minerals by using seven of the most common properties of mineral identification.

1

1

Share the results of mineral classifications and determine correctness with group members.

1.5

Closely examine minerals in a mineral kit by using a magnifying glass and add their findings to their mineral classification charts.

1.4

Design a classification chart based on the seven properties of mineral identification, to record data.

1.3

Identify and use the reliable online resources and other resources suggested on the wiki to properly classify and make their mineral identifications.

1.2

Identify and classify minerals according to their color, streak, luster, density, hardness, cleavage, and fracture.

1.1

Put acquired mineral information on a comparison and contrast chart.

1.3.2

Develop a comparison and contrast chart.

1.3.1

---------------------------------------------------------

Use a model chart to develop a comparison/contrast chart.

A1

Knows how to put information into a to comparison & contrast chart.

B2

Knows how to compare & contrast.

B1

Identify minerals by using seven of the most common properties of mineral identification.

1

1

Share the results of mineral classifications and determine correctness with group members.

1.5

Closely examine minerals in a mineral kit by using a magnifying glass and add their findings to their mineral classification charts.

1.4

Design a classification chart based on the seven properties of mineral identification, to record data.

1.3

Identify and use the reliable online resources and other resources suggested on the wiki to properly classify and make their mineral identifications.

1.2

Identify and classify minerals according to their color, streak, luster, density, hardness, cleavage, and fracture.

1.1

Examine the minerals in a mineral kit to classify minerals on the classification chart.

1.4.2

Use a magnifying glass to classify minerals on the classification chart.

1.4.1

-----------------------------------------------------------------------------------------------------

Knows how to determine differences between objects.

A2

Knows how to list the differences between minerals on chart.

B2

Knows how to use magnifying glass.

A1

Knows how to look for the differences between minerals.

B1

Knows how to use a magnifying glass.

B3

Identify minerals by using seven of the most common properties of mineral identification.

1

Share the results of mineral classifications and determine correctness with group members.

1.5

Closely examine minerals in a mineral kit by using a magnifying glass and add their findings to their mineral classification charts.

1.4

Identify and classify minerals according to their color, streak, luster, density, hardness, cleavage, and fracture.

1.1

Get into mineral groups.

1.5.1

Design a classification chart based on the seven properties of mineral identification, to record data.

1.3

Identify and use the reliable online resources and other resources suggested on the wiki to properly classify and make their mineral identifications.

1.2

Check fellow group member’s comparison/contrast charts to determine proper identification of minerals

1.5.2

-------------------------------------------------------------------------------------------------------

Know group members.

A1

Know the roles of group members.

A2

Be prepared to report one’s results and correct others.

B1

All fourth grade students will classify rocks and minerals by their properties, the three components of weathering, and discover the changes involved in the earth’s rock cycle by using reliable online resources and other available resources on the class wiki throughout the unit.

Identify minerals by using seven of the most common properties of mineral identification.

1

Use online and other available resources throughout the unit to investigate the rock cycle.

3

Use online and other available resources throughout the unit to correctly identify rocks by using 3 of the most common properties of rock identification.

2

Investigate rocks from a rock kit by using a magnifying glass and add their findings to their classification charts.

2.4

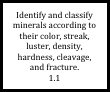
Share the results of their rock classifications and determine correctness with members of their groups.

2.5

Design a classification chart based on the 3 properties of identifying rocks, to record data.

2.3

Identify and use reliable online resources as well as others to classify and make rock identifications.

2.2

Identify and classify rocks as igneous, sedimentary, and metamorphic.

2.1

Identify and classify rocks as sedimentary.

2.1.2

Identify and classify rocks as metamorphic.

2.1.3

Identify and Classify rocks as igneous.

2.1.1

------------------------------------------------------------------------------------------------------

Knows how to use a classification chart.

A2

Knows how to use a magnifying glass.

A1

2

Use online and other available resources throughout the unit to correctly identify rocks by using 3 of the most common properties of rock identification.

2

Share the results of their rock classifications and determine correctness with members of their groups.

2.5

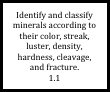
Investigate rocks from a rock kit by using a magnifying glass and add their findings to their classification charts.

2.4

Design a classification chart based on the 3 properties of identifying rocks, to record data.

2.3

Identify and use reliable online resources as well as others to classify and make rock identifications.

2.2

Identify and classify rocks as igneous, sedimentary, and metamorphic.

2.1

Using the Rocks and Minerals wiki students will determine the best resources for classifying and identifying.

2.2.1

Use outside resources to determine the best resources for classifying and indentifying.

2.2.2

------------------------------------------------------------------------------------------------

Knows how to read through resources for classification information.

A2

Knows where to access additional resources outside of the wiki in the classroom.

B1

Knows how to access the wiki.

A1

2

Use online and other available resources throughout the unit to correctly identify rocks by using 3 of the most common properties of rock identification.

2

Determine the 3 properties of rocks to include on chart.

2.3.2

Design a chart with three different categories.

2.3.1

Share the results of their rock classifications and determine correctness with members of their groups.

2.5

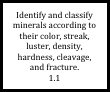
Investigate rocks from a rock kit by using a magnifying glass and add their findings to their classification charts.

2.4

Design a classification chart based on the 3 properties of identifying rocks, to record data.

2.3

Identify and use reliable online resources as well as others to classify and make rock identifications.

2.2

Identify and classify rocks as igneous, sedimentary, and metamorphic.

2.1

-----------------------------------------------------------------------------------------------------------

Knows how to divide a chart into 3 sections.

A2

Knows where to find the 3 properties of rocks.

B1

Decides whether or not to use the existing chart model or design own.

A1

Use online and other available resources throughout the unit to correctly identify rocks by using 3 of the most common properties of rock identification.

2

2

Adds their discoveries to their classification charts.

2.4.3

Opens a rock kit and investigates the rocks to classify them.

2.4.2

Uses a magnifying glass.

2.4.1

Identify and classify rocks as igneous, sedimentary, and metamorphic.

2.1

Identify and use reliable online resources as well as others to classify and make rock identifications.

2.2

Design a classification chart based on the 3 properties of identifying rocks, to record data.

2.3

Share the results of their rock classifications and determine correctness with members of their groups.

2.5

Investigate rocks from a rock kit by using a magnifying glass and add their findings to their classification charts.

2.4

-----------------------------------------------------------------------------------------

Knows where to find the rock kit and how to open it.

B1

Knows how to write property characteristics on their charts.

C1

Knows how to use a magnifying glass.

A1

Use online and other available resources throughout the unit to correctly identify rocks by using 3 of the most common properties of rock identification.

2

2

Check results of classification charts to determine individual correctness.

2.5.1

Check the results of classification charts with group members and make changes accordingly.

2.5.2

Share the results of their rock classifications and determine correctness with members of their groups.

2.5

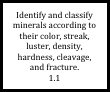
Investigate rocks from a rock kit by using a magnifying glass and add their findings to their classification charts.

2.4

Design a classification chart based on the 3 properties of identifying rocks, to record data.

2.3

Identify and use reliable online resources as well as others to classify and make rock identifications.

2.2

Identify and classify rocks as igneous, sedimentary, and metamorphic.

2.1

-------------------------------------------------------------------------------------------------

Knows how to use proper social skills to work as a team member with group.

B2

Knows how to accept being corrected and willing makes suggestions to other group members.

B3

Knows how to proofread own work.

A1

Knows how to use a checking pen to make corrections.

B1

All fourth grade students will classify rocks and minerals by their properties, the three components of weathering, and discover the changes involved in the earth’s rock cycle by using reliable online resources and other available resources on the class wiki throughout the unit.

Share the similarities and differences between the 3 types of weathering to determine correctness with their groups.

3.4

Relate the processes involved in the rock cycle to changes that occur in rocks.

3.3

Determine similarities and differences between chemical, physical, and biological weathering.

3.2

Identify and use reliable online resources and other resources suggested on the wiki to compare and contrast the 3 types of weathering.

3.1

Use online and other available resources throughout the unit to investigate the rock cycle.

3

Identify minerals by using seven of the most common properties of mineral identification.

1

Use online and other available resources throughout the unit to correctly identify rocks by using 3 of the most common properties of rock identification.

2

A

Identify other reliable resources suggested on the wiki to compare and contrast 3 types of weathering.

3.1.3

Identify reliable online resources from wiki to compare and contrast the 3 types of weathering.

3.1.2

Use the online wiki to learn about the 3 types of weathering.

3.1.1

--------------------------------------------------------------------------------------------------

Knows how to use other resources to compare and contrast.

C1

Knows how to use online resources to compare and contrast.

B1

Knows how to access the wiki.

A2

Knows how to maneuver around the wiki to find the 3 types of weathering.

A1

3

Use online and other available resources throughout the unit to investigate the rock cycle.

3

A

Share the similarities and differences between the 3 types of weathering to determine correctness with their groups.

3.4

Look for similarities and differences between physical and biological weathering.

3.2.3

Look for similarities and differences between chemical and biological weathering.

3.2.2

Look for similarities and differences between chemical and physical weathering.

3.2.1

Relate the processes involved in the rock cycle to changes that occur in rocks.

3.3

Determine similarities and differences between chemical, physical, and biological weathering.

3.2

Identify and use reliable online resources and other resources suggested on the wiki to compare and contrast the 3 types of weathering.

3.1

--------------------------------------------------------------------------------------------------

Knows how to decide what is different and what is similar between two elements.

A1

Knows how to ask questions to determine differences and similarities between the two elements.

C1

Knows how to use resources to determine differences and similarities between two elements.

B1

3

Use online and other available resources throughout the unit to investigate the rock cycle.

3

A

Determine how these processes in the rock cycle changes the rocks.

3.3.3

Using a combination of online and outside resources determine the processes involved in the rock cycle.

3.3.2

Using the online resources provided on the wiki or the additional outside resources determine the processes causing change in rocks.

3.3.1

Identify and use reliable online resources and other resources suggested on the wiki to compare and contrast the 3 types of weathering.

3.1

Determine similarities and differences between chemical, physical, and biological weathering.

3.2

Relate the processes involved in the rock cycle to changes that occur in rocks.

3.3

Share the similarities and differences between the 3 types of weathering to determine correctness with their groups.

3.4

-------------------------------------------------------------------------------------------------

Knows how to look for differences between types of information.

C1

Knows how to look for information within resources.

B2

Knows how process concepts.

A2

Knows where to find the online and outside resources.

B1

Knows how to access the wiki online.

A1

Discusses similarities and differences concerning the 3 types of weathering with group members

3.4.2

Checks 3 types of weathering again with the information received from online or outside resources.

3.4.1

Share the similarities and differences between the 3 types of weathering to determine correctness with their groups.

3.4

Relate the processes involved in the rock cycle to changes that occur in rocks.

3.3

Identify and use reliable online resources and other resources suggested on the wiki to compare and contrast the 3 types of weathering.

3.1

Determine similarities and differences between chemical, physical, and biological weathering.

3.2

Use online and other available resources throughout the unit to investigate the rock cycle.

3

3

A

Works together with group members to improve and change information, based on the findings of each student.

3.4.3

--------------------------------------------------------------------------------------------------

Knows how to share responsibilities with group members so that each individual is successful in learning.  
C1

Knows group members, how to peer edit, and how to give put ups.

B1

Knows the information learned and can discuss and debate with social graces while correcting.

B2

Knows how to summarize information.

A1

Knows how to find information within reading material.

A2

Knows how to go back and proofread work to be sure their answers make sense.

A3

A.3.c Matching Skills + Objectives

|  |  |  |
| --- | --- | --- |
|  |  |  |
| **Instructional Goal 1** |  | **Instructional Goal with Performance Context Added** |
| A class of fourth grade students will be able to use online and other available resources throughout the unit to 100% correctly identify minerals by using seven of the most common properties of mineral identification. |  | During the unit on minerals, students (CN) will utilize the unit wiki to find resources online and off to correctly make identifications (B) 100% of the time (CR). |
|  |  |  |
| **Instructional Objectives for Goal 1** |  | **Matching Behavioral Objectives** |
| **1.1: Students will be able to identify and classify minerals according to their color, streak, luster, density, hardness, cleavage, and fracture.** |  | 1.1. At the beginning of the unit, students (CN) will be shown how to use a magnifying glass (CR) to classify the seven components of minerals (B). |
| **1.2: Students will identify and use the reliable online resources and other resources suggested on the wiki to properly classify and make their mineral identifications.** |  | 1.2. At the beginning of the unit, students (CN) will be shown how to access the unit wiki (CR), so each one will always know where to find online and offline resources (B). |
| **1.3 Students will design a classification chart based on the seven properties of mineral identification, to record data.** |  | 1.3. At the beginning of the unit, students (CN) will design their own classification chart (CR), which will include all of the seven mineral properties (B). |
| **1.4: Students will have a chance to closely examine minerals in a mineral kit by using a magnifying glass and add their findings to their mineral classification charts.** |  | 1.4 Students will use a magnifying glass (CN), to examine various minerals (CR) according to the specific mineral classifications (B). |
| **1.5 Students will share the results of their mineral classifications and determine correctness with members of their rocks and minerals group.** |  | 1.5 After making the mineral classifications, students (CN) will determine the validity (CR) of all classifications with their group members (B). |
|  |  |  |
| **Instructional Goal 2** |  | **Instructional Goal with Performance Context Added** |
| A class of fourth grade students will be able to use online and other available resources throughout the unit to correctly identify rocks by using 3 of the most common properties of rock identification. |  | During the unit on rocks students (CN) will utilize the unit wiki to find resources online and off to correctly make identifications (CR) 100% of the time (B). |
|  |  |  |
| **Instructional Objectives for Goal 2** |  | **Matching Behavioral Objectives** |
| **2.1** Students **will be able to identify and classify rocks as igneous, sedimentary, and metamorphic.** |  | 2.1. Using the online wiki and other resources listed within, students (CN) will identify and classify rocks (CR) into three specific categories (B). |
| **2.2** Students **will identify and use reliable online resources and other resources suggested on the wiki to properly classify and make their rock identifications.** |  | 2.2 Through the use of the listed resources available on the wiki and a magnifying glass (CN) students will be able to properly identify and classify (CR) all of their rocks (B). |
| **2.3**  **Students will design a classification chart based on the 3 properties of identifying rocks, to record data.** |  | 2.3 At the beginning of the unit, students (CN) will design their own classification chart (CR), which will include all of the 3 rock properties (B). |
| **2.4 Students will have an opportunity to investigate rocks from a rock kit by using a magnifying glass and add their findings to their rock classification charts.** |  | 2.4 Students will use a magnifying glass (CN), to examine various minerals (CR) according to the specific rock classifications (B). |
| **2.5 Students will share the results of their rock classifications and determine correctness with members of their rocks and minerals group.** |  | 2.5 After making the rock classifications, students (CN) will determine the validity (CR) of all classifications with their group members (B). |
|  |  |  |
| **Instructional Goal 3** |  | **Instructional Goal with Performance Context Added** |
| A class of fourth grade students will be able to use online and other available resources throughout the unit to investigate the rock cycle. |  | During the unit on the rock cycle, students (CN) will utilize the unit wiki to find resources online and off to correctly make identifications (B) 100% of the time (CR). |
|  |  |  |
| **Instructional Objectives for Goal 3** |  | **Matching Behavioral Objectives** |
| **3.1** Students **will identify and use reliable online resources and other resources suggested on the wiki to compare and contrast the 3 types of weathering.** |  | 3.1 Using the online wiki and other resources listed within, students (CN) will compare and contrast (CR) into three specific types of weathering (B). |
| **3.2** Students **will use a comparison/contrast chart to determine the similarities and differences between chemical, physical, and biological weathering.** |  | 3.2 Through the use of the listed resources available on the wiki students (CN) will be able to determine similarities and differences (CR) between all the types of weathering (B). |
| **3.3** Students **will use their comparison/contrasts charts to relate the processes involved in the rock cycle to changes that occur in rocks.** |  | 3.3 At the beginning of the weathering part of the unit, students (CN) will design their own comparison/contrast chart (CR), which will allow for the relationships among the processes involved in the rock cycle to be observed (B). |
| **3.4 Students will share the similarities and differences between the 3 types of weathering to determine correctness with their rocks and minerals groups.** |  | 3.4 After making the distinctions between the rock cycle processes, students (CN) will determine the validity (CR) of all similarities and differences with their group members (B). |

**A.4.a Learner Characteristics**

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| **Information Categories** | **Data Source** | **Learners Characteristics** |
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| **1. Entry behaviors** | **Questioners:** students using a wiki, examining rock kits, and making charts  **Observations:** students who are unfamiliar with reading to find information | **Performance setting: Learners** have little or no prior knowledge of how to use a wiki. They all have used computers and the Internet before. Only a few have closely examined rocks before. All students are becoming more familiar with researching concepts. |
| **2. Prior knowledge of topic area** | **Same as above** | Most of the learners have no prior knowledge of using wikis. They do know a few rocks and minerals, but are confused as to which are considered to be rocks and which are considered to be minerals. |
| **3. Attitude toward content** | **Same as above** | Learners are excited to be able to use computers, the Internet, and rock and mineral kits in their science unit. |
| **4. Attitudes toward potential delivery system.** | **Same as above** | Learners have experience learning through hands on, lecture, self-learning, and demonstrations. I will be using all of these forms but will be adding learning from the internet. |
| **5. Motivation for instruction (ARCS)** | **Same as above** | **Attention:** Students are positive about learning in an online format. They enjoy looking at websites online. They also like using the magnifying glasses and looking at various objects and their features.  **Relevance:** When the students determine the differences between the various minerals and rocks according to their properties they will be able to see how the types of weathering affects both the rocks and minerals therefore making the information learned relevant to the rock cycle.  **Confidence:** I will help the students feel more confident by explaining the purpose of the wiki and how they will always have access to the online resources. They won’t have to worry about writing down the web addresses. We will go over note taking and discuss putting these notes into their own words. I will also guide them through how to look for important information. I will be available to help them create their charts and encourage them to ask one another questions too. **Satisfaction:** The students will find satisfaction when they share their findings with their group members and find that the wiki is readily available to them. |
| **6. Educational and ability levels** | **Same as above** | **Educational Levels:** Learners are all in the fourth grade classroom environment and are ages 9-10. Some vary in the their levels of scientific reasoning and abilities to read at the fourth grade level. **Ability Level:** The student’s abilities are at the appropriate level to use online and off line resources. |
| **7. General learning preferences** | **Same as above** | Learners are experienced with a variety of learning formats. They prefer demonstrations and hands on activities. |
| **8. Attitudes toward training organization** | **Same as above** | Positive feedback from learners about using a wiki as a tool to help learn about rocks and minerals. They feel they will be in a comfortable environment to learn. They feel that this instruction will help them to learn more about rocks and minerals as well as motivate them to take a better look at rocks they find in the future. |
| **9. General group characteristics a. Heterogeneity b. Size c. Overall impression** | **Same as above** | **Heterogeneity**: Learners are somewhat heterogeneous in that they come from different communities, which make up the school district. They come from many different backgrounds and experiences. There is almost an even mix of males and females in the class. **Size:** There will be a total of 55 students. **Overall impressions:** Instructions need to be clear and easy to utilize, so learners don't feel lost or overwhelmed. They need to feel in control and be able to manipulate the wiki, their research, charts, and other available resources. |

**Joni Walvatne**

**D.5.a. Description and Rationale of Selection Process for Instructional Strategies**

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| **Clusters\*** | **Instructional Goals** |
| 1 | Introduction, Main step 1: Identification and classification of minerals, Main step 2: Identification of rocks  Cluster 1 Objectives:  Main Step 1: Identification and classification of minerals  1.1 1.2 1.3 1.4 1.5  1.2.1 1.3.1 1.4.1 1.5.1  1.2.2 1.3.2 1.4.2 1.5.2  Cluster 2 Objectives:  Main Step 2: Identification of classification of rocks  2.1 2.2 2.3 2.4 2.5  2.1.1 2.2.1 2.3.1 2.4.1 2.5.1  2.1.2 2.2.2 2.3.2 2.4.2 2.5.2  2.1.3 2.4.3 |
| 2 | Use a magnifying glass to closely examine rocks and minerals |
| 3 | Review and Main step 3: Investigating the rock cycle  Cluster 3 Objectives:  Main Step 3: Investigating the rock cycle  3.1 3.2 3.3 3.4  3.1.1 3.2.1 3.3.1 3.4.1  3.1.2 3.2.2 3.3.2 3.4.2  3.1.3 3.2.3 3.3.3 3.4.3 |
| 4 | Use online resources to investigate the rock cycle |

* All clusters are designed to required approximately 1.5 hours

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| **Preinstructional Activities** |
| **Motivation: ARCS**  **Attention:** Students are positive about learning in an online format. They enjoy looking at websites online. They also like using the magnifying glasses and looking at various objects and their features.  **Relevance:** When the students determine the differences between the various minerals and rocks according to their properties they will be able to see how the types of weathering affects both the rocks and minerals therefore making the information learned relevant to the rock cycle.  **Confidence:** I will help the students feel more confident by explaining the purpose of the wiki and how they will always have access to the online resources. They won’t have to worry about writing down the web addresses. We will go over note taking and discuss putting these notes into their own words. I will also guide them through how to look for important information. I will be available to help them create their charts and encourage them to ask one another questions too. **Satisfaction:** The students will find satisfaction when they share their findings with their group members and find that the wiki is readily available to them.  **Objectives:**  **Identification and classification of rocks and minerals:**  I will show students how to find the lists of websites regarding rocks and minerals. They will also have access to outside resources listed on the wiki such as rock and mineral kits. Students will also be encouraged to use the online encyclopedia along with other books in the school library. Students will also need to design their own classification chart based off of the models shown.  **Identification and classification of the rock cycle:**  I will show students how to find online and offline resources located on the wiki. Students will be able to draw a model of the rock cycle to organize their information.  **Entry Behaviors:**  My students will need to be able to use the computer and more specifically the Internet. They need to be able to insert a web address into their browser. They will also need basic research skills as well as know how to paraphrase information being collected. They will need to be able to use a model and be able to apply it to their own design.  **Student Grouping and Media Selections:**  I plan on the students working in a whole group setting when I am modeling the classification and identification charts. Then as I show them how to type in the correct address they will be able to help one another access the class wiki. From this point forward I will allow them to comment and make observations together. Most of the work will be individual, but I will allow them to share ideas and ask questions of one another as they proceed through the unit. There are three lessons in the unit, so students will be meeting in small groups at the end of each one to discuss observations and agree on classifications. |
| Assessment |
| **Pretest:**  I do not plan to test for entry behaviors. I do plan on doing an observational checklist on how well they are processing the information off of the wiki. I will be closely examining which students seem to ask a lot of questions of others and myself on how to use the computer or Internet. Students will also participate by doing a KWL chart on what they know about rocks and minerals.  **Practice Test:**  The students will be given information regarding rocks and minerals. The websites listed on the wiki will be discussed and students will be given a choice on which to use and get their information off of. Students will fill in their identification and classification charts for each rock and mineral listed. The characteristics of the rocks and minerals will be recorded and then shared with group members to identify correctness.  **Posttest:**  At the end of the unit students will be given an overall assessment where they will be required to choose identify various rocks and minerals and lists those specific characteristics. They will also have to draw the complete rock cycle.  **Student Grouping and Media Selections:**  The pretest will be an observational checklist, which will be done on an individual basis. Students will all be in a large group setting for the modeling, research, identification, and classification opportunities. They will be responsible for individual assignments, but will be allowed to interact. They will be in small groups for correcting and discussing their identification and classification charts. During the posttest students will be tested on an individual basis. |
| **Follow-Through Activities** |
| **Memory Aids:**  I will be giving each student a hand out that has the wiki address on it and the requirements for creating their classification and identification charts, as well as how they should design their rock cycle.  **Transfer:**  The students will be modeling how to use the wiki and other outside resources to their advantage, by completing their identification and classification charts. Students will also show they comprehend the rock cycle by being able to draw and label it. Students will transfer their knowledge from their charts to the posttest when they have to identify and classify various rocks and minerals.  **Student Grouping and Media Selections:**  Students will work in a large group for the modeling and they will work individually using the wiki and other outside resources. They will work in small groups to discuss and comment on one another’s learning. All testing will be done on an individual basis. |

**D.5.b Instructional Strategies to be Used**

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| **Objective 1.1**  Identify and classify minerals according to their color, streak, luster, density, hardness, cleavage, and fracture. |
| **Content Presentation** |
| **Content:** The students will learn how to identify classify minerals according to seven properties.  **Examples:**   1. Students will read about color, streak, luster, density, hardness, cleavage, and fracture. 2. Students will be able to differentiate between the characteristics of the various minerals by using the properties. 3. Students will be shown how to look at a mineral and determine its seven properties.   **Student Grouping and Media Selection:**  Students will be the large group for this presentation. The media used will be a wiki. |
| **Student Participation** |
| **Practice Items and Activities:**  1. Observe demonstration  2. Access wiki  3. Look at minerals on and off wiki  **Feedback:**  Students will give feedback of their understanding by classifying and identifying by making notes on their charts.  **Student Grouping and Media Selection:**  Students will work in the large group for the demonstration and learning how to access the wiki. They will work individually when actually classifying the minerals. |

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| **Objective 1.2**  Identify and use the reliable online resources and other resources suggested on the wiki to properly classify and make their mineral identifications. |
| **Content Presentation** |
| **Content:** The students will learn how to appropriately navigate the Internet by using a wiki and the websites with in it.  **Examples:**   1. Students will be given a demonstration on how to navigate the wiki. 2. Students will be shown how to make a decision regarding which websites are just right for them to use for mineral identification.   **Student Grouping and Media Selection:**  Students will be the large group for this presentation. The media used will be a wiki. |
| **Student Participation** |
| **Practice Items and Activities:**  1 Watch demonstration on how to navigate between the pages on a wiki.  2. Practice clicking on the various pages.  2. Watch demonstration on how to make a “just right” decision for their website use.  3. Look through the websites for the ones that they feel comfortable reading and using.  **Feedback:**  Students will give feedback to the teacher on which websites they feel comfortable using as a fourth grade students. The teacher will walk around observing student use and answering questions.  **Student Grouping and Media Selection:**  Students will work in the large group for the demonstration, they will work individually when practicing the procedures |

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| **Objective 1.3**  Design a classification chart based on the seven properties of mineral identification, to record data. |
| **Content Presentation** |
| **Content:** The students will learn how to design a classification chart.  **Examples:**   1. Students will be given a model classification chart. 2. Students will be given an opportunity to copy the chart given them or design one of their own. 3. Students will be given a demonstration on how to create a chart using a table in Microsoft Word.   **Student Grouping and Media Selection:**  Students will be the large group for this presentation. The media will be using Microsoft Word and the model handout. |
| **Student Participation** |
| **Practice Items and Activities:**  1. View model classification chart.  2. Design their own version of a classification chart that they can use in mineral identification.  3. Watch demonstration on how create a chart within Microsoft Word.  **Feedback:**  Instructor will okay the classification chart that each student creates.  **Student Grouping and Media Selection:**  Students will work in the large group for the demonstration and individually for the classification chart creation. |

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| **Objective 1.4**  Closely examine minerals in a mineral kit by using a magnifying glass and add their findings to their mineral classification charts. |
| **Content Presentation** |
| **Content:** The students will learn how to properly examine minerals with a magnifying glass.  **Examples:**   1. Students will be given a demonstration on how to hold the rock, review the properties of a mineral, and how to record it on their classification charts.   **Student Grouping and Media Selection:**  Students will be the large group for this presentation. The media will be a magnifying glass, the minerals, and a classification chart. |
| **Student Participation** |
| **Practice Items and Activities:**  1. Watch demonstration on how to use a magnifying glass to examine minerals.  2. Practice using a magnifying glass to examine an d record findings on their classification charts.  **Feedback:**  Instructor will question students about the properties they should be looking for while examining the minerals. The instructor will also be observing students records that they are making on their classification charts.  **Student Grouping and Media Selection:**  Students will work in the large group for the demonstration and individually when they practice using the magnifying glass. |

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| **Objective 1.5**  Share the results of mineral classifications and determine correctness with group members. |
| **Content Presentation** |
| **Content:** The students will learn how they are to share their findings with their group members.  **Examples:**   1. Students will watch as the teacher models for them how they should appropriately share their findings and make changes if necessary. 2. Share with students who their group members will be.   **Student Grouping and Media Selection:**  Students will be the large group for this presentation. The media for this will be the wiki to look up information if necessary. |
| **Student Participation** |
| **Practice Items and Activities:**  1. Watch demonstration on what to share, ask, and how to make necessary changes.  2. Students will meet with their group members and go over the group jobs.  3. Students will discuss their mineral classifications to determine correctness.  4. Students will make appropriate changes if necessary.  **Feedback:**  Students will give feedback of their understanding by discussing with their teacher their findings.  **Student Grouping and Media Selection:**  Students will work in the large group for the demonstration; they will work individually when practicing the procedures. |

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| **Objective 2.1**  Identify and classify rocks as igneous, sedimentary, and metamorphic. |
| **Content Presentation** |
| **Content:** The students will learn how to make identifications and classifications regarding rocks.  **Examples:**   1. Students will be allowed to use the wiki to read about each class of rock.   **Student Grouping and Media Selection:**  Students will be working individually to classify rocks into three categories. |
| **Student Participation** |
| **Practice Items and Activities:**  1. Students will make a list of rocks for each of the categories.  **Feedback:**  Students will turn in their list of rocks under each category, after they meet with group members to determine correctness.  **Student Grouping and Media Selection:**  Students will work individually looking at various rocks within the three categories. Then they will get into their small groups for discussion. |

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| **Objective 2.2**  Identify and use reliable online resources as well as others to classify and make rock identifications. |
| **Content Presentation** |
| **Content:** The students will learn how to appropriately navigate the Internet by using a wiki and the websites with in it.  **Examples:**   1. Students will be given a demonstration on how to navigate the wiki. 2. Students will be shown how to make a decision regarding which websites are just right for them to use for rock identification.   **Student Grouping and Media Selection:**  Students will be the large group for this presentation. The media used will be a wiki. |
| **Student Participation** |
| **Practice Items and Activities:**  1 Watch demonstration on how to navigate between the pages on a wiki.  2. Practice clicking on the various pages.  2. Watch demonstration on how to make a “just right” decision for their website use.  3. Look through the websites for the ones that they feel comfortable reading and using.  **Feedback:**  Students will give feedback to the teacher on which websites they feel comfortable using as a fourth grade students. The teacher will walk around observing student use and answering questions.  **Student Grouping and Media Selection:**  Students will work in the large group for the demonstration, they will work individually when practicing the procedures |

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| **Objective 2.3**  Design a classification chart based on the 3 properties of identifying rocks, to record data. |
| **Content Presentation** |
| **Content:** The students will learn how to design a classification chart.  **Examples:**   1. Students will be given a model classification chart. 2. Students will be given an opportunity to copy the chart given them or design one of their own. 3. Students will be given a demonstration on how to create a chart using a table in Microsoft Word.   **Student Grouping and Media Selection:**  Students will be the large group for this presentation. The media will be using Microsoft Word and the model handout. |
| **Student Participation** |
| **Practice Items and Activities:**  1. View model classification chart.  2. Design their own version of a classification chart that they can use in mineral identification.  3. Watch demonstration on how create a chart within Microsoft Word.  **Feedback:**  Instructor will okay the classification chart that each student creates.  **Student Grouping and Media Selection:**  Students will work in the large group for the demonstration and individually for the classification chart creation. |

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| **Objective 2.4**  Investigate rocks from a rock kit by using a magnifying glass and add their findings to their classification charts. |
| **Content Presentation** |
| **Content:** The students will learn how to properly examine minerals with a magnifying glass.  **Examples:**   1. Students will be given a demonstration on how to hold the rock, review the properties of a mineral, and how to record it on their classification charts.   **Student Grouping and Media Selection:**  Students will be the large group for this presentation. The media will be a magnifying glass, the rocks, and a classification chart. |
| **Student Participation** |
| **Practice Items and Activities:**  1. Watch demonstration on how to use a magnifying glass to examine rocks.  2. Practice using a magnifying glass to examine and record findings on their classification charts.  **Feedback:**  Instructor will question students about the properties they should be looking for while examining the rocks. The instructor will also be observing students records that they are making on their classification charts.  **Student Grouping and Media Selection:**  Students will work in the large group for the demonstration and individually when they practice using the magnifying glass. |

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| **Objective 2.5**  Share the results of their rock classifications and determine correctness with members of their groups. |
| **Content Presentation** |
| **Content:** The students will learn how they are to share their findings with their group members.  **Examples:**   1. Students will watch as the teacher models for them how they should appropriately share their findings and make changes if necessary. 2. Share with students who their group members will be.   **Student Grouping and Media Selection:**  Students will be the large group for this presentation. The media for this will be the wiki to look up information if necessary. |
| **Student Participation** |
| **Practice Items and Activities:**  1. Watch demonstration on what to share, ask, and how to make necessary changes.  2. Students will meet with their group members and discuss their rock classifications.  3. Students will make appropriate changes if necessary.  **Feedback:**  Students will give feedback by discussing with the teacher their findings.  **Student Grouping and Media Selection:**  Students will work in the large group for the demonstration; they will work in small groups when determining correctness. |

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| **Objective 3.1**  Identify and use reliable online resources and other resources suggested on the wiki to compare and contrast the 3 types of weathering. |
| **Content Presentation** |
| **Content:** The students will learn how to appropriately navigate the Internet by using a wiki and the websites with in it.  **Examples:**   1. Students will be given a demonstration on how to navigate the wiki. 2. Students will be shown how to make a decision regarding which websites are just right for them to use for comparing and contrasting the 3 types of weathering.   **Student Grouping and Media Selection:**  Students will be the large group for this presentation. The media used will be a wiki. |
| **Student Participation** |
| **Practice Items and Activities:**  1 Watch demonstration on how to navigate between the websites regarding the types of weathering within the wiki.  2. Practice clicking on the various pages.  2. Watch demonstration on how to make a “just right” decision for their website use.  3. Look through the websites for the ones that they feel comfortable reading and using.  **Feedback:**  Students will give feedback to the teacher on which websites they feel comfortable using as a fourth grade students. The teacher will walk around observing student use and answering questions.  **Student Grouping and Media Selection:**  Students will work in the large group for the demonstration, they will work individually when practicing the procedures |

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| **Objective 3.2**  Determine similarities and differences between chemical, physical, and biological weathering. |
| **Content Presentation** |
| **Content:** The students will learn how to appropriately navigate the wiki looking for information on the three types of weathering.  **Examples:**   1. Students will be given a demonstration on how to navigate the various websites on weathering within the wiki. 2. Students will be shown how to make a decision regarding which websites are just right for them to use for comparing and contrasting the 3 types of weathering.   **Student Grouping and Media Selection:**  Students will be the large group for this presentation. The media used will be a wiki. |
| **Student Participation** |
| **Practice Items and Activities:**  1 Watch demonstration on how to navigate between the websites on weathering within a wiki.  2. Practice clicking on the various pages.  2. Watch demonstration on how to make a “just right” decision for their website use.  3. Look through the websites for the ones that they feel comfortable reading and using.  **Feedback:**  Students will give feedback to the teacher on which websites they feel comfortable using as a fourth grade students. The teacher will walk around observing student use and answering questions.  **Student Grouping and Media Selection:**  Students will work in the large group for the demonstration, they will work individually when practicing the procedures |

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| **Objective 3.3**  Relate the processes involved in the rock cycle to changes that occur in rocks. |
| **Content Presentation** |
| **Content:** The students will learn how to appropriately navigate the Internet by using a wiki and the websites within it to learn about the rock cycle.  **Examples:**   1. Students will be given a demonstration on how to navigate the wiki and the websites related to the rock cycle. 2. Students will be shown how to make a decision regarding which websites are just right for them to use for relating the processes involved in the rock cycle to the changes that occur in rocks.   **Student Grouping and Media Selection:**  Students will be the large group for this presentation. The media used will be a wiki. |
| **Student Participation** |
| **Practice Items and Activities:**  1 Watch demonstration on how to navigate the rock cycle websites on a wiki.  2. Practice clicking on the various websites.  2. Watch demonstration on how to make a “just right” decision for their website use.  3. Look through the websites for the ones that they feel comfortable reading and using.  **Feedback:**  Students will give feedback to the teacher on which websites they feel comfortable using as a fourth grade students. The teacher will walk around observing student use and answering questions.  **Student Grouping and Media Selection:**  Students will work in the large group for the demonstration, they will work individually when practicing the procedures |

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| **Objective 3.4**  Share the similarities and differences between the 3 types of weathering to determine correctness with their groups. |
| **Content Presentation** |
| **Content:** The students will learn how they are to share their findings regarding the 3 types of weathering with their group members.  **Examples:**   1. Students will watch as the teacher models for them how they should appropriately share their findings and make changes if necessary. 2. Share with students who their group members will be.   **Student Grouping and Media Selection:**  Students will be the large group for this presentation. The media for this will be the wiki to look up information if necessary. |
| **Student Participation** |
| **Practice Items and Activities:**  1. Watch demonstration on what to share, ask, and how to make necessary changes.  2. Students will meet with their group members and discuss their findings, therefore determining correctness and making appropriate changes.  **Feedback:**  Students will give feedback by discussing with their findings regarding the 3 types of weathering.  **Student Grouping and Media Selection:**  Students will work in the large group for the demonstration; they will work in small groups when practicing the procedure. |

**D.6.a Selection and Description of the Instructional Media to be Used**

**The materials**

The materials chosen are geared towards fourth grade students. They will be using computers and the Internet. They will also be accessing the unit wiki as well as a variety of websites within the wiki. Along with the wiki they will be creating a chart by using the Microsoft Word program.

The teacher will be providing them with handouts on two different model classification charts. One will be for minerals and the other one will be for rocks. Students will also need magnifying glasses as well as access to actual rocks and minerals.

The teacher will provide rock and mineral kits. There will also be books and posters available for reading and viewing as outside resources. The class will also be using a science textbook, which is part of the science curriculum as an additional resource.

**Visual Literacy:**

Visual communications are present throughout this course. The students will have every step and procedure modeled for them before each lesson. They will always have access to the wiki, kits, magnifying glasses, books, and posters. They will also always have their classification charts to refer to.

**Communication Theory:**

The teacher will help to reinforce what is being demonstrated with verbal instructions. These instructions along with the visual aids will help with the students make the connections needed to remember various resources they have available. They may also communicate with one another in small groups or one on one, to ask questions or share ideas and suggestions.

**Utilization and Integration**

**Implementation:**

During the first part of implementation students will be given laptops and will become familiar with accessing the wiki and the websites. They will be shown how the unit is broken down into rocks and minerals, weathering, and the rock cycle. They will also be shown other outside resources and how to appropriately use them. To start the unit they will complete a K-W-L chart and do some reading from their science textbook as an introduction to what rocks and minerals are.

They will also be introduced to their group members and go through group work instructions.

In the next phase of the unit, we will work on creating their mineral classification charts. They will be able to design their own or borrow the model the teacher hands out. However they will still have to create their own chart. The teacher will model for the students how to create a chart within the Microsoft Word program. Once the chart is created students will be able to use online and offline resources to research information regarding the properties of minerals. Then they will determine whether their information has been recorded correctly, by discussing it with other members in their group. At this time they may make any last minute changes to their charts before turning them in to be graded. Students at this time also may go back to the resources to double check for correctness.

The next phase will be very similar to the last phase only it will deal with rocks and their classifications. Students will go through the exact steps as the mineral stage. Then they will move onto learning about the 3 types of weathering and the rock cycle. The end results of both of these parts of the unit being the drawings of a rock as it goes through each type of weathering and a drawing of the complete rock cycle.

**Institutionalization:**

This wiki was designed for fourth graders in mind, but it can be modified to fit a third grade or even up to the sixth grade level. It can be aligned with any science curriculum as well as the any school districts standards and benchmarks in which rocks and minerals are mentioned.

**Utilization and Standards**

**Policies:**

Students will have to have an Internet use policy signed as well as parental approval. These forms are usually signed at the beginning of the year, but it is good to check and make sure each student has approval before starting the unit. These can either be found with the technology specialist or the office at your school.

**Regulations:**

At this time the only regulation is to assign each student a laptop and to be sure they are approved for Internet use.

**Special needs:**

There are no students with an IEP or 504 plan so there is no need for students to have accommodations made. They may always use a whisper phone if they would like to hear themselves read it. As always questions are encouraged.

**D.6.b Instructional Material Selection Considerations**

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| **If Final Medium Will Be:** | **Then Rough Draft Version Could Be:** |
| * A completed and corrected classification chart for rocks and minerals. | * An edited classification chart for rocks and minerals. |
| * The same wiki that has links to websites that provides links to other websites in relation to the unit. | * A wiki that I have designed that provides links to other websites in relation to the unit. |
| * Same damaged magnifying glasses. | * Damaged magnifying glasses. |
| * Same glass with inside and outside curves. | * Glass with inside and outside curves. |
| * Same rock and mineral kits. | * Rock and mineral kits. |
| * Same books, posters, and digital images. | * Books, Posters, and digital images. |

**D.6.c Sample Media**

Rock Kits





Posters:

Rocks and Minerals



The Rock Cycle



Steps to Accessing the Wiki Handout:

1. Get your laptop.

2. Login to your computer.

3. Open safari.

4. Type <http://4thgraderocksandminerals.wikispaces.com/> into the

web browser.

5. Go to bookmarks and click on add bookmark.

6. Add bookmark to bookmarks menu.

7. Wait for directions from teacher.

Wiki page:

http://4thgraderocksandminerals.wikispaces.com/

**E.7.a. Assessment Matrix**

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| **Skill** | **Performance Objectives** | **Test Items** |
| 1.3 Design classification chart for minerals. | Students will design a classification chart based on the seven properties of mineral identification,to record data. | Students will be designing their own classification chart. See example of section one of model classification chart.   |  |  | | --- | --- | | Mineral Name | Notes  Color:  Streak:  Luster:  Density:  Hardness:  Cleavage:  Fracture | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1.3 Design classification chart for minerals. | Students will design a classification chart based on the seven properties of mineral identification,to record data. | **Rubric:** See example rubric for mineral classification chart.   |  |  |  |  | | --- | --- | --- | --- | |  | 5 | 3 | 1 | | Mineral Properties | All 7 properties have been correctly identified within minerals. | 4-6 properties have been correctly identified within minerals. | 1-3 minerals have been correctly identified within minerals. | | Names of Minerals | At least 7 minerals have been chosen and named correctly. | At least 4-6 minerals have been chosen and named correctly. | At least 1-3 minerals have been chosen and named correctly. | | Notes | There are more than 5 pieces of information about the minerals listed. All notes are 100% accurate. | There are at least 3-4 pieces of information about the minerals listed. All notes are 75% accurate. | There are at least 1-2 pieces of information about the minerals listed. All notes are 50% accurate. | | Total\_\_\_\_\_/20  Grade\_\_\_\_\_\_ | Total \_\_\_\_ | Total\_\_\_\_ | Total\_\_\_ |   Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Mineral Rubric   |  |  |  |  | | --- | --- | --- | --- | |  | 5 | 3 | 1 | | Mineral Properties | All 7 properties have been correctly identified within minerals. | 4-6 properties have been correctly identified within minerals. | 1-3 minerals have been correctly identified within minerals. | | Names of Minerals | At least 7 minerals have been chosen and named correctly. | At least 4-6 minerals have been chosen and named correctly. | At least 1-3 minerals have been chosen and named correctly. | | Notes | There are more than 5 pieces of information about the minerals listed. All notes are 100% accurate. | There are at least 3-4 pieces of information about the minerals listed. All notes are 75% accurate. | There are at least 1-2 pieces of information about the minerals listed. All notes are 50% accurate. | | Total\_\_\_\_\_/20  Grade\_\_\_\_\_\_ | Total \_\_\_\_ | Total\_\_\_\_ | Total\_\_\_ |   Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Mineral Rubric |

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| 2.3 Design classification chart for rocks. | Students will design a classification chart based on the 3 properties of identifying rocks, to record data. | **Rubric:** See example rubric for rock classification chart.   |  |  |  |  | | --- | --- | --- | --- | |  | 5 | 3 | 1 | | Rock Names | At least 5 rocks are listed. | At least 3-4 rocks are listed. | At least 1-2 rocks are listed. | | Rock Identification | All the rocks named are correctly identified to one of the 3 properties. | At least 75% of the rocks named are correctly identified to one of the 3 properties. | At least 50% of the rocks named are correctly identified to one of the 3 properties. | | Total\_\_\_\_/10  Grade\_\_\_\_ | Total\_\_\_\_ | Total\_\_\_\_ | Total\_\_\_\_ |   Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Rock Rubric |

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| 3.2 Compare and contrast differences in weathering. | Students will use a comparison/contrast chart to determine the similarities and differences between chemical, physical, and biological weathering. | **Comparison/contrast chart for weathering.**  Names\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **Commonalities**  **Biological**  Comparing and Contrasting Weathering  **Physical**  **Chemical**  **Biological**  **Commonalities** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3.2 Compare and contrast differences in weathering. | Students will use a comparison/contrast chart to determine the similarities and differences between chemical, physical, and biological weathering. | **Rubric:** See example rubric for weathering comparison/contrast chart.  Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Comparing/Contrasting Weathering Rubric   |  |  |  |  | | --- | --- | --- | --- | |  | 5 | 3 | 1 | | Comparisons | All 3 types of weathering have been compared and at least 5 commonalities have been identified. | All types of weathering have been compared and at least 3-4 commonalities have been identified. | All types of weathering have been compared and at least 1-2 commonalities have been identified. | | Contrasting | All 3 types of weathering have been contrasted and at least 3 differences are listed in each category. | All types of weathering have been contrasted and at least 2 differences are listed in each category. | All types of weathering have been contrasted and at least 2 differences are listed in each category. | | Total\_\_\_\_\_/10  Grade\_\_\_\_\_\_ | Total\_\_\_ | Total\_\_\_\_ | Total\_\_\_\_ | |
| 3.3 Draw picture of the rock cycle incorporating weathering processes. | Students will use their comparison/contrasts charts to relate the processes involved in the rock cycle to changes that occur in rocks. | **Students will design their own rock cycle diagram incorporating the components of weathering. See example below.**  Igneous  Sediments  Sedimentary    Metamorphic    Magma  Process starts over  Igneous  Key to Discovering what the Arrows Mean:  Weathering and Erosion  Compact  Heat and Pressure  Melting  Cooling |

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| --- | --- | --- |
| 3.3 Draw picture of the rock cycle incorporating weathering processes. | Students will use their comparison/contrasts charts to relate the processes involved in the rock cycle to changes that occur in rocks. | Rubric for rock cycle diagram.  Checklist:  All 3 rock types are listed and in the correct order………………………………………………………\_\_\_\_/6  The processes and arrows are all shown correctly……………………………………………….\_\_\_\_/5  The processes and arrows are all color coded and displayed in a key…………………………\_\_\_\_/5  Total………………………………………………………\_\_\_\_/16  Grade\_\_\_\_\_\_\_\_\_ |

**E.7.b. Sample Assessment Instruments**

|  |  |  |
| --- | --- | --- |
| Operating the Wiki Checklist | Yes | No |
| Minerals |  |  |
| Rocks |  |  |
| Weathering |  |  |
| Rock Cycle |  |  |

**E.8.a. Proposed Process** (Project: Rocks and Minerals on a Wiki, by Joni Walvatne, 2010)

The task of formative evaluation is to make improvements on the proposed plan of instructional design before it is implemented the first time. This unit will be beginning in April of 2010. There are two parts to this evaluation process that would allow for the instructional designer to make the necessary changes before implementing the unit. This feed back or formative evaluation will come from fourth grade teachers and their students.

The participants who would be the teachers and the learners, which are the students, will both be involved in the formative evaluation process. The teachers will use a observational checklist and ask three questions as they fill out their checklist. The students will fill out a group evaluation with how well they work in the base learning groups on a normal day.

The four questions that will be asked of the teacher or instructional designer to record are as follows:

1. Can students’ access the wiki and it’s resources?

2. Have students improved their abilities to research and put their finding into their own words?

3. Does class size impact student performance?

4. Do the student discussions on their classification charts benefit their learning?

The five questions that the students will evaluate their groups/group members on are as follows:

Are all group members actively participating?

Are group members sharing their findings with the whole group?

Are group members using available resources independently, or are they expecting group members to answer for them?

Are group members sharing resources that are working for them?

What were the group’s favorite resources?

**E.8.c. Revision Plan Based on Evaluations**

**Terminal Objective** (Upon completion of the unit)

All fourth grade students will classify rocks and minerals by their properties, the three components of weathering, and discover the changes involved in the earth’s rock cycle by using reliable online resources and other available resources on the class wiki throughout the unit.

|  |  |  |  |
| --- | --- | --- | --- |
| **Questions** | **Data Sources** | **Methods** | **Plan for Revision** |
| Can students access the wiki and it’s resources? | Learners | Observational Checklist | Prior knowledge has an effect on whether or not students know how to access a wiki, so I will revise my plan to include an interview with students on what they know about wikis before starting the unit. |
| Have students improved their abilities to research and put their finding into their own words? | Learners | Reflection | I plan to revise my plan and include a reflection, which will be done by the students on what they learned. Specifically what they did they find difficult, what was easy, and what they enjoyed learning. |
| Does class size impact student performance? | Learner | Interview and observation | Class size does impact student performance; Therefore with a large class the teacher will need to utilize an aide. |
| Do the student discussions on their classification charts benefit their learning? | Peers | See Sample formative evaluation below | Students will answer questions based on their fellow group members. |
| Are than any newly found resources that need to be added to the wiki? | Teacher | Interview | I as the instructional designer plan to interview the teacher on how the wiki was utilized during the unit. I want to be sure I can help with changes and help the teachers to edit the wiki and make it theirs. It is my hope to make the wiki one that is always being changed for the betterment of the learners and teachers. |

**E.8.b. Sample Formative Evaluation Instruction**

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| --- | --- | --- |
| **Questions** | **Data Sources** | **Methods** |
| Are all group members actively participating? | Peers | Group evaluation |
| Are group members sharing their findings with the whole group? | Peers | Group Evaluation |
| Are group members using available resources independently, or are they expecting group members to answer for them? | Peers | Group Evaluation |
| Are group members sharing resources that are working for them? | Peers | Group Evaluation |
| What were the group’s favorite resources? | Peers | Group Evaluation |

**E.9.a Proposed Process**

This is an example of what the summative evaluation would look like.

The goal of the course is that all fourth grade students will classify rocks and minerals by their properties, the three components of weathering, and discover the changes involved in the earth’s rock cycle by using reliable online resources and other available resources on the class wiki throughout the unit.

**Congruence:** In order to evaluate this, the needs and goals of the class need to be checked to make sure they are congruent with the instruction.

**Content:** Does the content of the course support the learning of the skills and procedures of appropriate mineral and rock identification. Is it complete and current?

**Design:** Does the instruction align with principles of learning and does it motivate the learners?

**Feasibility:** Are the materials durable, reliable, and cost effective?

**Outcomes:** How has the instruction impacted the learners, have they achieved the goal of the course?

**Management or Organization:** Willthis unit within a wiki meet the instructional needs of both the teacher and students?

|  |  |  |  |
| --- | --- | --- | --- |
|  | Collecting Data | Analyzing Data | Results |
| **Congruence** |  |  |  |
| **Content** |  |  |  |
| **Design** |  |  |  |
| **Feasibility** |  |  |  |
| **Outcomes** |  |  |  |
| **Management or Organization** |  |  |  |

**E9.b. Identification of Intended Recipient**

The intended recipient of this summative report will be any fourth grade teacher that wants to teach a unit on minerals and rocks?

**E.10.a. Lessons Learned**

I learned as an instructional designer, that one has to be very detailed when developing an instructional unit or whatever it may be that is being designed. It is a very long and time-consuming process. The great part of designing this unit was that I was able to work with a fourth grade teacher. I enjoyed taking the time to sit down with her and find out what the problem was and than think of a solution. I thoroughly enjoy using wikis and find them to be the perfect solution for almost anything that needs a bit of organization. They are easy to use and set up. Another major benefit to using a wiki is that some of them are free. With the school districts cutting back so much on funding, it is imperative that teachers are able and to have free and reliable resources at their disposal.

I would say the most frustrating part of this project was putting together my hierarchical analysis. I have to say I was not a professional when it came to developing and utilizing flow charts. However pages later I was beginning to get the hang of it. I enjoyed seeing how my objectives and goals connected to everything. There were times when I could not see the connection right away, but the beauty of it was that by the end of the project you could see how each piece fit the puzzle so to speak.

As I was designing the project I was involved with students as well as other teachers. The students were super intrigued and were very excited to learn that they will get an opportunity to use the wiki. They wanted to use it immediately, finding out that they have to wait a couple months was not overly exciting for them. This gives the teacher time to locate outside resources that she may want me to upload to the wiki. I created all the examples and rubrics and she liked those, but I know she has documents from previous teachings of the unit that she would like to incorporate.

Working with this teacher has allowed other teachers who teach in the district to see what we are doing or at least hear about it. I have another teacher who has approached me to do the same thing for his kindergarten class. This is exciting to me. I am able to help these teachers save time and open their worlds to more and more Web 2.0 tools that are freely available to them. Using these tools motivates students and is definitely beneficial in their learning.

Overall this project has been very overwhelming at times. However I have learned how to closely examine all aspects of this unit, or at least I have attempted to. I have enjoyed creating the wiki and being able to see the all the components fit together. It is my hope by creating this wiki, that it will benefit not only the teacher using it, but more importantly the students.